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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/676,350	RAMANATHAN, GOVINDARAJ	
	Examiner	Art Unit	
	MARY C. JACOB	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The response filed on 3/3/08 has been received and considered. Claims 1-17 are presented for examination.

Claim Objections

2. The objections to the claims, recited in the 10/1/07 Office Action, not repeated below, have been withdrawn in view of the amendments to the claims filed 3/3/08.

3. Claim 13 is objected to because of the following informalities. Appropriate correction is required.

4. Claim 13, line 9 recites "an action requests", it would be better if written, "an action request".

Claim Rejections - 35 USC § 112

5. The rejections of the claims under 35 U.S.C. 112, second paragraph recited in the 10/1/07 Office Action have been withdrawn in view of the amendments to the claims filed 3/3/08.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 13, 15 and 16 are rejected under 35 U.S.C. 102(a) as being anticipated by Kim et al ("Design and Implementation of Home Network Systems Using UPnP Middleware for Networked Appliances", IEEE Transactions on Consumer Electronics, Volume 48, Issue 4, Nov 2002, page(s): 963 – 972).

8. As to Claim 13, Kim et al teaches: computer-readable media having stored thereon a software framework of a generic device emulator for execution on a computer to provide emulation of an operation of a device within a device connectivity architecture consistent with a textual description of the device, wherein the description of the device specifies data formats of requests and responses for a set of actions that the device is capable of (page 965, column 1, paragraphs 1 and paragraph 2, lines 5-8; Figures 9 and 10 and descriptions), the generic device emulator comprising: program code for receiving action requests directed to the device within the device connectivity architecture (page 965, column 1, paragraphs 2-4; Section 4, paragraph 3; Figure 10 and description); program code for checking an action request against the description to validate whether the action request matches that of an action specified in the description (page 965, column 1, paragraph 4; Figure 2, "Action Invocation" loop; section 4.2, paragraph 4, lines 5-6) and program code for performing a default behavior producing a response for the action consistent with the data format specified in the description, thereby emulating operation of the device for the action (page 965, column 1, paragraph 4; Figure 2, "Action Invocation" loop, Figure 10, "dataType").

9. As to Claim 15, Kim et al teaches: wherein performing the default behavior comprises producing a response message containing a default value consistent with the data format of the response specified for the action in the description (page 965, column 1, paragraph 4; page 967, column 1, paragraph 3; Figure 10, "dataType').

10. As to Claim 16, Kim et al teaches: wherein the program code for performing the default behavior for the action in which the data format of the request and response has a set of input and output parameters corresponding to state variables of the device comprises: program code for setting the corresponding state variables of the device to values of the respective input parameters contained in the action request (page 968, column 2, last sentence); and program code for producing the response with output parameters set to values of the corresponding state variables of the device (page 965, column 1, paragraph 2, lines 6-8 and paragraph 4).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Kim et al ("Design and Implementation of Home Network Systems Using UPnP Middleware for Networked Appliances", IEEE Transactions on Consumer Electronics,

Volume 48, Issue 4, Nov 2002, page(s): 963 – 972) in view of Hite et al (US Patent 7,213,061).

13. As to Claim 1, Kim et al teaches: a method of generically emulating devices communicating through a device connectivity protocol, the method comprising: processing in a generic device emulator a description of a device to be emulated in the device connectivity protocol, the description specifying a set of actions of the device to be emulated (Table 2; page 965, column 1, paragraph 1; Section 4.2, paragraph 1; Figures 9 and 10 and descriptions); in response to receiving an action request at the device emulator per the device connectivity protocol, checking the action request against the device description in the device emulator to validate which action out of the set of actions specified in the description the action request matches (page 965, column 1, paragraph 4; Figure 2, "Action Invocation" loop; section 4.2, paragraph 4, lines 5-6); upon validating an action to which the action request matches, producing, at the device emulator, a default response, the response based on the description such that, through the response the device emulator emulates operation of the device to be emulated (page 965, column 1, paragraph 4; Figure 2, "Action Invocation" loop).

14. Kim et al does not expressly teach wherein the device emulator capable of emulating more than one device based on device descriptions.

15. Hite et al teaches a system and method of an Internet control network that eliminates or substantially reduces the disadvantages of prior control systems by allowing boundaries between the Internet and the control area network to become transparent (column 1, lines 28-35) wherein Internet appliances (Figure 1, elements 37-

39; column 3, lines 31-48) communicate via a device connectivity protocol in a control area network (Figure 1, element 34; column 5, lines 48-65) and wherein the network includes a generic device emulator capable of emulating more than one device based on device descriptions (column 6, lines 5-8, 22-27 and lines 33-40).

16. Kim et al and Hite et al are analogous art since they are both directed to emulating appliances in a device connectivity protocol.

17. It would have been obvious to one or ordinary skill in the art at the time the invention was made to modify the device emulator as taught in Kim et al to be a generic device emulator capable to emulating more than one device based on device descriptions as taught in Hite et al since Hite et al teaches a system and method of an Internet control network that eliminates or substantially reduces the disadvantages of prior control systems by allowing boundaries between the Internet and the control area network to become transparent (column 1, lines 28-35).

18. As to Claim 2, Kim et al as modified by Hite et al teaches: wherein producing the default response comprises producing a response message containing a default value consistent with a data type specified for a return parameter of the action in the description (Kim et al: page 965, column 1, paragraph 4; page 967, column 1, paragraph 3; Figure 10, "dataType").

19. As to Claim 3, Kim et al as modified by Hite et al teaches: wherein the validated action has a set of input and output parameters corresponding to state variables of the device (Kim et al: page 965, column 1, paragraph 4section 4.2, paragraph4, last sentence, "in the action services, the values of the state variables are changed by the

user") and wherein producing the default response comprises: setting the corresponding state variables of the device to values of the respective input parameters contained in the action request (Kim et al: page 968, column 2, last sentence); producing a response with output parameters set to values of the corresponding state variables of the device (Kim et al: page 965, column 1, paragraph 2, lines 6-8 and paragraph 4); and producing an eventing message if the action modified any evented variables (Kim et al: page 965, column 1, paragraph 4; page 967, column 2, last sentence).

20. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al in view of Hite et al as applied to claim 1 above, further in view of Kumar et al (US Patent 7,017,148).

21. Kim et al as modified by Hite et al teaches processing in a device emulator a description of a device to be emulated in a device connectivity protocol, the description specifying a set of actions of the device to be emulated, validating in the device emulator which action out of the set of actions specified in the description the action request matches and upon this validation, producing a default response at the device emulator.

22. Kim et al as modified by Hite et al does not expressly teach (claim 4) providing hooks to interface user-provided action response implementations, if any, for the set of actions; upon validating the action request to match the action, first checking whether there is a user provided action response implementation for the action; producing the default behavior response consistent with the description of there is no user-provided

action response implementation and otherwise performing the user-provided action response implementation for the action; (claim 5) wherein the hooks interface user-provided action response implementation of at least one action out of the set of actions but not every action out of the set of actions.

23. Kumar teaches a method and apparatus for UPnP device code generation that provides a time and cost effective solution for developing UPnP devices by eliminating stages of the software development cycle and allows the device developer to focus their attention on application-specific problems instead of worrying about UPnP (column 23, lines 13-34), wherein hooks are provided to interface user-provided action response implementations of at least one action out of the set of actions, but not every action out of the set of actions (column 6, line 28-column 7, line 14) wherein the developer is only required to write the portion of code to handle a particular function or event (user-provided action response implementation) while the code to handle the underlying UPnP functionality is automatically generated (default behavior).

24. Kim et al as modified by Hite et al and Kumar are analogous art since they are both directed to UPnP devices and their XML descriptions.

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of processing of a description in a device in a device connectivity protocol to produce a default response to emulate a device in a connectivity protocol as taught in Kim et al as modified by Hite et al to provide hooks to interface user-provided action response implementations as taught in Kumar since Kumar teaches a method and apparatus for UPnP device code generation that provides

a time and cost effective solution for developing UPnP devices by eliminating stages of the software development cycle and allowing the device developer to focus their attention on application-specific problems instead of worrying about UPnP (column 23, lines 13-34). Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the processing of the description document for a UPnP device as taught by Kim et al as modified by Hite et al (Kim et al: Section 4.2, paragraph 1; Figures 9 and 10 and descriptions) would determine if there is a user-provided action response and produce the default response if there is no user-provided action response implementation or otherwise perform the user-provided action response implementation for the action since the description document will be processed in the same way regardless of how the actions have been specified. The processing will determine which action out of the set of actions in the description document matches the action request and perform the matching behavior whether it is a default behavior or a user-defined behavior.

26. Claims 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al as modified by Hite et al as applied to claim 1 above, and further in view of Skingsley et al (US Patent 6,697,751).

27. Kim et al as modified by Hite et al teaches the testing of emulated devices in a device connectivity protocol (Kim et al Figure 15).

28. Kim et al as modified by Hite et al does not expressly teach (claim 6) applying a defect behavior to messages produced to emulate the device in the device connectivity

protocol; (claim 7) wherein the defect behavior is applied to packets of a particular type; (claim 9) and randomly applying a defect behavior out of a set of defect behaviors to messages produced to emulated the device in the device connectivity protocol.

29. Skingsley et al teaches an apparatus for testing and/or monitoring the transmission of data packets by communications equipment including an emulator that simulates a variety of network conditions for a variety of packets that embed a range of protocols and over a range of types of networks (column 12, lines 31-33) that subjects packets to errors thereby allowing applications to review their methods for handling such network interruptions which is valuable since present methods of testing network software may not expose potential failures (column 12, lines 38-43), wherein (claim 10) the emulator (); (claims 6, 7) applies defect behavior to messages produced to emulate the device in the device connectivity protocol, wherein the defect behavior is applied to the packet of a particular type (column 4, lines 1-12; column 12, lines 31-41; column 12, lines 50-60; column 13, lines 51-61); and (claim 9) and randomly applying a defect behavior out of a set of defect behaviors to messages produced to emulate the device in the device connectivity protocol (column 13, lines 63-66).

30. Kim et al as modified by Hite et al and Skingsley et al are analogous art since they are both directed to the testing of network devices in a device communications protocol.

31. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the testing of emulated devices in a device connectivity protocol as taught by Kim et al as modified by Hite et al to include applying defect

behavior to messages produced to emulate the device in the device connectivity protocol, wherein the defect behavior is applied to packets of a particular type, and randomly applying a defect behavior out of a set of defect behaviors to messages produced to emulated the device in the device connectivity protocol as taught in Skingsley et al since Skingsley et al teaches an apparatus for testing and/or monitoring the transmission of data packets by communications equipment including an emulator that simulates a variety of network conditions for a variety of packets that embed a range of protocols and over a range of types of networks (column 12, lines 31-33) that subjects packets to errors thereby allowing applications to review their methods for handling such network interruptions which is valuable since present methods of testing network software may not expose potential failures (column 12, lines 38-43).

32. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al as applied to claim 13 above, in view of Kumar et al.

33. Kim et al teaches processing in a device emulator a description of a device to be emulated in a device connectivity protocol, the description specifying a set of actions of the device to be emulated, validating in the device emulator which action out of the set of actions specified in the description the action request matches and upon this validation, producing a default response at the device emulator.

34. Kim et al does not expressly teach (claim 14) providing hooks to interface user-provided action response implementations, if any, for the set of actions; upon validating the action request to match the action, first checking whether there is a user provided

action response implementation for the action; producing the default behavior response consistent with the description of there is no user-provided action response implementation and otherwise performing the user-provided action response implementation for the action.

35. Kumar teaches a method and apparatus for UPnP device code generation that provides a time and cost effective solution for developing UPnP devices by eliminating stages of the software development cycle and allows the device developer to focus their attention on application-specific problems instead of worrying about UPnP (column 23, lines 13-34), wherein hooks are provided to interface user-provided action response implementations of at least one action out of the set of actions, but not every action out of the set of actions (column 6, line 28-column 7, line 14) wherein the developer is only required to write the portion of code to handle a particular function or event (user-provided action response implementation) while the code to handle the underlying UPnP functionality is automatically generated (default behavior).

36. Kim et al and Kumar are analogous art since they are both directed to UPnP devices and their XML descriptions.

37. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of processing of a description in a device in a device connectivity protocol to produce a default response to emulate a device in a connectivity protocol as taught in Kim et al to provide hooks to interface user-provided action response implementations as taught in Kumar since Kumar teaches a method and apparatus for UPnP device code generation that provides a time and cost effective

solution for developing UPnP devices by eliminating stages of the software development cycle and allowing the device developer to focus their attention on application-specific problems instead of worrying about UPnP (column 23, lines 13-34). Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the processing of the description document for a UPnP device as taught by Kim (Section 4.2, paragraph 1; Figures 9 and 10 and descriptions) would determine if there is a user-provided action response and produce the default response if there is no user-provided action response implementation or otherwise perform the user-provided action response implementation for the action since the description document will be processed in the same way regardless of how the actions have been specified. The processing will determine which action out of the set of actions in the description document matches the action request and perform the matching behavior whether it is a default behavior or a user-defined behavior.

38. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al as modified by Hite et al, further in view of Skingsley et al as applied to claim 6 above, and further in view of Kumar and UPnP Implementers Corporation ("UPnP Device Certification Process Document", Version 1.0, 2001), herein referred to as UPnPIC.

39. Kim et al as modified by Hite et al further in view of Skingsley et al teach applying a defect behavior to messages produced to test an emulated UPnP device in a device connectivity protocol.

40. Kim et al as modified by Hite et al further in view of Skingsley et al do not expressly teach wherein applying the defect behavior comprises invoking a user-provided implementation of the defect behavior.

41. Kumar teaches a method and apparatus for UPnP device code generation that provides a time and cost effective solution for developing UPnP devices by eliminating stages of the software development cycle and allows the device developer to focus their attention on application-specific problems instead of worrying about UPnP (column 23, lines 13-34), wherein user-provided action response implementations are added to the device description (column 6, line 27-column 7, line 14) wherein the developer is only required to write the portion of code to handle a particular function or event (user-provided action response implementation) while the code to handle the underlying UPnP functionality is automatically generated (default behavior).

42. UPnPIC teaches the UPnP certification process that is used to determine if a device complies with the applicable UPnP standard wherein compliance indicates that different devices from different vendors support the same device standard and are interchangeable with respect to that standard (section 3.1, paragraph 1) wherein the certification testing of a UPnP device necessary to achieve certification includes protocol, syntax tests and semantic tests (section 5.1, paragraph 1; Figure 4), wherein the syntax tests are derived from the device descriptions with added annotations for testing (Figure 5; section 5.2, last paragraph, second bullet).

43. Kim et al as modified by Hite et al further in view of Skingsley et al, Kumar and UPnPIC are analogous art since they are both to UPnP devices and their device descriptions.

44. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the application of defect behaviors to messages produced by emulated UPnP devices in a device connectivity protocol as taught in Kim et al as modified by Hite et al further in view of Skingsley et al to include adding user-provided implementations of device behaviors as taught in Kumar, wherein the user-provided implementation of the device behaviors would include such behaviors as defect behaviors, added to the device description for testing purposes as taught in UPnPIC, since the addition of user-provided defect behaviors in a device description for a UPnP device that is emulated in a device connectivity protocol would allow a device developer to study how the device functions in the presence of certain errors in its description and how errors will effect the device's communication with other devices in a network.

45. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skingsley et al in view UPnPIC.

46. Skingsley et al teaches an apparatus for testing and/or monitoring the transmission of data packets by communications equipment including an emulator that simulates a variety of network conditions for a variety of packets that embed a range of protocols and over a range of types of networks (column 12, lines 31-36) wherein (claim

10) the emulator reads a defect configuration representing a defect behavior to be applied to a type of packet transmitted from an emulated device per a device connectivity protocol (column 4, lines 1-12; column 12, lines 38-41 and 56-58; column 13, lines 63-66; Figure 7); applying the defect behavior to the packet of a particular type before transmitting the packet (column 12, lines 56-58; column 13, lines 51-61); transmitting the packets as modified by applying the defect behavior (column 12, lines 58-60); (claim 12) and randomly applying a defect behavior out of a set of defect behaviors to messages produced to emulate the device in the device connectivity protocol (column 13, lines 63-66).

47. Skingsley et al does not expressly teach (claim 10) the defect configuration that represents a defect behavior being represented in a device defect configuration file, the defect behavior represented in a tagged text format, (claim 11) wherein applying the defect behavior comprises invoking a user-provided implementation of the defect behavior.

48. UPnPIC teaches the certification testing of a UPnP device that includes protocol, syntax tests and semantic tests (section 5.1, paragraph 1; Figure 4), wherein the test tool includes the protocol tests that are generated from the UPnP device architecture, syntax tests that are derived from the device descriptions with added annotations for testing, and semantic tests specified by the Working Committees (WC's) that may test combinations of states and actions, for example, to test if a VCR properly responds with an error to a specific action (Figure 5; section 5.2, last paragraph and bullets). UPnP further teaches that device descriptions are written in XML and that UPnP technology

uses Internet components including IP, TCP, UDP, HTTP and XML (section 1, paragraph 2; section 2.1). It is understood by the Examiner that in order for the VCR to respond with an error message, it must be written in the VCR's device description that an "error" message must be generated in response to the play button being pushed when a tape is not loaded in the VCR (page 15, bullet 3). Therefore, in order for this behavior of the VCR to be tested, a test that produces this "defect" behavior, wherein the play button is pushed when there is no tape in the VCR, must be read and applied to the VCR in order to test the device, therefore, a "device defect configuration file" is read that represents a "defect behavior" to be applied. Further, it is understood that the device descriptions, written in XML are in a tagged text format and that the protocol testing of the device occurs by sending test packets over the IP network using UPnP protocol from the test node to the UPnP device being tested as shown in Figure 4. Finally, it is understood that the device descriptions are "annotated" by a user.

49. Skingsley et al and UPnPIC are analogous art since they are both directed to the testing of a device in a device connectivity protocol.

50. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the application of a defect behavior to packets transmitted between networked computer components via a device connectivity protocol as taught in Skingsley et al to include reading a device defect configuration file, wherein the defect behaviors are represented in a tagged text format and wherein the defect behaviors are user-implemented as taught by UPnPIC since UPnPIC teaches the testing of devices in a device connectivity protocol wherein the devices are described in

XML descriptions that can be annotated for testing wherein it would be beneficial for the device developer to annotate the behaviors of a device under test to determine how the device will function in a network connectivity protocol in response to the invocation of particular behaviors such as behaviors that may invoke defects in the device.

51. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al as applied to claim 13 above, in view of Skingsley et al, further in view of UPnPIC.

52. Kim et al teaches the testing of emulated devices in a device connectivity protocol (Figure 15), wherein the emulated devices are UPnP devices described in XML tagged text (Figure 10).

53. Kim et al does not expressly teach reading a device defect configuration file representing at least one defect behavior to be applied to a type of packet transmitted from the emulated device within the device connectivity architecture, applying the defect behavior to the packet of the particular type and transmitting the packet from the emulated device as modified by the defect behavior.

54. Skingsley et al teaches an apparatus for testing and/or monitoring the transmission of data packets by communications equipment including an emulator that simulates a variety of network conditions for a variety of packets that embed a range of protocols and over a range of types of networks (column 12, lines 31-33) that subjects packets to errors thereby allowing applications to review their methods for handling such network interruptions which is valuable since present methods of testing network software may not expose potential failures (column 12, lines 38-43), wherein (claim 10)

the emulator reads a defect configuration representing a defect behavior to be applied to a type of packet transmitted from an emulated device per a device connectivity protocol (column 4, lines 1-12; column 12, lines 31-36; column 12, lines 56-58; column 13, lines 51-61); applying the defect behavior to the packet of a particular type before transmitting the packet (column 12, lines 56-58); and transmitting the packets as modified by applying the defect behavior (column 12, lines 58-60); (claim 11) and randomly applying a defect behavior out of a set of defect behaviors to messages produced to emulate the device in the device connectivity protocol (column 13, lines 63-66).

55. Kim et al and Skingsley et al are analogous art since they are both directed to the testing of network devices in a device communications protocol.

56. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the testing of an UPnP emulated device in a device connectivity protocol as taught in Kim et al to include reading a defect configuration representing a defect behavior to be applied to a type of packet transmitted from the emulated device per the device connectivity protocol, applying the defect behavior to the packet, and transmitting the packet from the emulated device as modified by applying the defect behavior as taught in Skingsley et al since Skingsley et al teaches an apparatus for testing and/or monitoring the transmission of data packets by communications equipment including an emulator that simulates a variety of network conditions for a variety of packets that embed a range of protocols and over a range of types of networks (column 12, lines 31-33) that subjects packets to errors thereby

allowing applications to review their methods for handling such network interruptions which is valuable since present methods of testing network software may not expose potential failures (column 12, lines 38-43).

57. Kim et al as modified by Skingsley et al do not expressly teach the defect configuration that represents a defect behavior being represented in a device defect configuration file.

58. UPnPIC teaches the certification testing of a UPnP device that includes protocol, syntax tests and semantic tests (section 5.1, paragraph 1; Figure 4), wherein the test tool includes the protocol tests that are generated from the UPnP device architecture, syntax tests that are derived from the device descriptions with added annotations for testing, and semantic tests specified by the Working Committees (WC's) that may test combinations of states and actions, for example, to test if a VCR properly responds with an error to a specific action (Figure 5; section 5.2, last paragraph and bullets). It is understood by the Examiner that in order for the VCR to respond with an error message, it must be written in the VCR's device description that an "error" message must be generated in response to the play button being pushed when a tape is not loaded in the VCR (page 15, bullet 3). Therefore, in order for this behavior of the VCR to be tested, a test that produces this "defect" behavior, wherein the play button is pushed when there is no tape in the VCR, must be read and applied to the VCR in order to test the device, therefore, a "device defect configuration file" is read that represents a "defect behavior" to be applied.

59. Kim et al as modified by Skingsley et al and UPnPIC are analogous art since they are directed to the testing of a device in a device connectivity protocol.

60. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the application of a defect behavior to packets transmitted between networked computer components via a device connectivity protocol as taught in Kim et al as modified by Skingsley et al to include reading a device defect configuration file as taught by UPnPIC since UPnPIC teaches the testing of devices in a device connectivity protocol wherein the devices are described in XML descriptions that can be annotated for testing wherein it would be beneficial for the device developer to annotate the behaviors of a device under test to determine how the device will function in a network connectivity protocol in response to the invocation of particular behaviors such as behaviors that may invoke defects in the device.

Response to Arguments

61. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Specifically, Applicant argues that Kim's appliance emulators do not teach or suggest "processing, in a generic device emulator able to emulate more than one device based on a device description, a description of a device to be emulated" (pages 10 and 11). The Examiner would like to note that although the claim sets forth "a generic device emulator able to emulate more than one device based on device descriptions", the claim only sets forth that the generic device emulator processes "a description of a device", therefore, only emulating one specific

device. Further, the McKim reference sets forth that the appliance emulators can be operated on a UPnP-enabled embedded device or PC using a Linux or WinCE platform (section 4.2, paragraph 1). It is understood that an "emulator" will emulate any device according to whatever device description it is programmed to implement, in this case, the UPnP-enabled device or PC are programmed to emulate each appliance, therefore, making the emulator "generic". While the Examiner believes that the McKim reference does teach or suggest "processing in a generic device emulator able to emulate more than one device based on device descriptions", the Hite et al reference has been cited to show this claim limitation as taught in the prior art.

62. Applicant argues that Kim's "appliance emulators" do not check against a description to operate since each only uses descriptions to advertise their operations and therefore, do not teach or suggest "checking the action request against the device description in the device emulator to validate which action" (pages 10-11). McKim teaches that the "...*appliance emulators can be operated* on a UPnP-enabled embedded device or PC using a Linux or WinCE platform" (section 4.2, paragraph 1, lines 5-8). Therefore, it is the Examiner's understanding that the device descriptions of the appliance emulators are "processed". Further, McKim teaches "checking the action request against the device description in the device emulator to validate which action out of the set of actions specified in the description the action request matches" (page 965, column 1, paragraph 4; Figure 2, "Action Invocation" loop) wherein a message is sent to invoke an action in the appliance after the user invokes an action service, and when the action is successful, the updated state variables are displayed. It is the

Examiner's position that the "action service" is the "action request". This "action request" is "sent to invoke the action" which "checks the action request against the device description in the device emulator to validate which action out of the set of actions specified in the description the action request matches", and that the "successful" result of updated state variables shows that the proper action requested was found in the device description, thereby allowing the action to take place which would update the variables as a result.

63. Applicant's arguments with respect to claim 10 have been considered but are moot in view of the new ground(s) of rejection. Applicants arguments regarding Skingsley not teaching or suggesting a "device defect configuration file" (page 13) refer to limitations that have been amended into the claim and are treated with prior art as cited above. Applicant also recites that Skingsley "does not at all discuss how it chooses *which* effects to apply to the packets to emulate network errors" (page 14). The Examiner notes, however, that the language of claim 10 does not recite any "choosing" of a defect behavior to apply to a packet.

Conclusion

64. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

65. Shue et al (US Patent 6,862,564) teaches a system and method for providing an emulated network including a plurality of emulated networking devices, wherein one emulator machine executes various numbers of network node executable images.

66. Theobald (US Patent 5,864,658) teaches verifying the conformity of a device under test with a standard application protocol wherein a test apparatus emulates devices to be controlled and interrogated by the device under test.

67. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

68. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary C. Jacob whose telephone number is 571-272-6249. The examiner can normally be reached Tuesday-Thursday, 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Mary C Jacob/

Examiner, Art Unit 2123

/M. C. J./

5/6/08

/Paul L Rodriguez/
Supervisory Patent Examiner,
Art Unit 2123